

Thermal telomerization ...

S/661/61/000/006/012/081
D205/D302

29, 660, 784, (1957); J. L. Speier, J. A. Webster and G. H. Barnes, J. Amer. Chem. Soc., 79, 974, (1957).

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR, Moscow (Institute of Elemental Organic Compounds, Academy of Sciences USSR, Moscow)

Card 5/5

FREYDLINA, R.Kh.; YEGOROV, Yu.P.; CHUKOVSKAYA, Ye.TS.; TSAO I [TS'ao I];
LUBUZH, Ye.D.

Rearrangement occurring in the process of the thermal telomeri-
zation of ethylene with silicon hydrides. Izv. AN SSSR. Otd.
khim.nauk no.7:1256-1261 J1 '61. (MIRA 14:7)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Ethylene) (Silicon hydrides) (Polymerization)

21499

15 8114

2209, 1372, 1407

S/020/61/137/004/024/031
B103/B208

AUTHORS: Freydina, R.Kh., Corresponding Member AS USSR,
Chukovskaya, Ye.Ts., Tsao-I, and Nesmeyanov, A.N.,
Academician

TITLE: Telomerization and polymerization of ethylene with silicon
hydrides in the presence of titanium tetrachloride

PERIODICAL: Doklady Akademii nauk SSSR, v. 137, no. 4, 1961, 885 - 888

TEXT: The authors studied the telomerization of ethylene with: I) sili-
co-chloroform, II) methyl dichloro-silane, and III) triethyl silane in
the presence of $TiCl_4$ which catalyzes (initiates) these reactions accord-
ing to the formula $CH_3SiCl_2H + nCH_2=CHR \rightarrow CH_3SiCl_2(CH_2CHR)_nH$. They used
a steel autoclave in which the reaction was carried out under pressure and
by heating. Ethylene was found to be telomerized smoothly and with a good
degree of conversion in cases I and II. In case I, some telomer homologs
with the structure $SiCl_3C_nH_{2n+1}$, where $n = 2, 4, 6, 8$, were isolated from

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Telomerization and polymerization of ...

the mixture of telomerization products. The constants of these substances (Table 2) and of their methylation products (Table 3) are in good agreement with those previously obtained by the authors (Ref.2, DAN, 113, 120, 1957). The normal structure of their alkyl groups was confirmed by infrared spectra. Ad II. A mixture of telomer homologs with a structure $\text{CH}_3\text{SiCl}_2\text{C}_n\text{H}_{2n+1}$ was formed at 180 - 200°C and at a maximum pressure of 280 atm. This reaction is complicated by the formation of liquid hydrocarbons due to ethylene polymerization. Table 4 gives the constants of some methyl-alkyl dichloro-silanes with $n = 2, 4, 6, 8$. Ad III. At 130°C, ethylene is polymerized to polyethylene with no telomers being formed. This difference in the course of the reaction is said to be due to a different reducing power of the individual silicon hydrides studied. Triethyl silane, e.g., contains electron-donor groups bound to silicon, and is therefore a more powerful reducing agent than trichloro-silane and methyl-dichloro-silane. This might be the reason why these silicon hydrides with TiCl_4 yield products that are reduced to a different extent. X-ray structure analysis (performed at laboratoriya rentgenostrukturnogo analiza (Laboratory of X-Ray Structural Analysis) and laboratoriya fiziki polimerov

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S/020/61/137/004/024/031
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Telomerization and polymerization of ...

(Laboratory of Polymer Physics) of the Institut elementoorganicheskikh soyedineniy (Institute of Elemental-organic Compounds)) disclosed that the polyethylene obtained by the authors is identical with low-pressure polyethylene and the product obtained by diazomethane decomposition (X-ray pictures of the two latter polymers were made available by V.A. Sergeyev). Thermomechanical analysis showed a melting point of 135°C for the authors' polyethylene, which also corresponds to low-pressure polyethylene. Its molecular weight was 26670, determined from the viscosity in tetrahydronaphthalene at 135°C. This indicates that the authors' polyethylene is practically identical with the two polyethylenes mentioned (analogous data in Ref. 4, S. Nitsshe, Khimiya i tekhnologiya polimerov, 1960, p. 54). There are 2 figures, 4 tables and 6 references: 5 Soviet-bloc and 1 non-Soviet-bloc.

SUBMITTED: December 8, 1960

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S/020/61/137/004/024/031
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Telomerization and polymerization of ...

Table 2

Соедине- ние	Т. кип., °C		n_D^{20}		d_4^{20}		MR	
	найд.	лит. данные	найд.	лит. данные	найд.	лит. данные	найд.	вычисл.
$C_2H_5SiCl_3$	97	97-100	1.4218	—	1.2264	—	34.08	33.41
$C_3H_7SiCl_2$	148	148-151	1.4358	1.4352	1.1583	1.1577	42.92	42.71
C_4H_9SiCl	87 (30 мм)	87-89 (30 мм)	1.4435	1.4440	1.1092	1.1094	53.53	53.12
$C_5H_{11}SiCl$	102 (10 мм)	97 (10 мм)	1.4490	1.4490	1.0746	1.0744	61.81	61.41

Таблица 3

Table 3

Соединение	Т. кип., °C		n_D^{20}		d_4^{20}		MR	
	найд.	лит. данные	найд.	лит. данные	найд.	лит. данные	найд.	вычисл.
$C_2H_5Si(CH_3)_2$	82	82	1.3820	1.3828	0.6638	0.6649	34.78	34.83
$C_3H_7Si(CH_3)_2$	113	115	1.4035	1.4030 (при 25°)	0.7167	0.7181	44.42	44.12
$C_4H_9Si(CH_3)_2$	161-163	163	1.4162	1.4154	0.7418	0.7422	53.57	53.41
$C_5H_{11}Si(CH_3)_2$	82 (10 мм)	82,3 (10 мм)	1.4235	1.4242	0.7571	0.7581	62.76	62.70

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S/020/61/137/004/024/031
B103/B208

Telomerization and polymerization of ...

Соединение	Выход, %	3 Т. кип., °C		n _D ²⁰		-20		MR Tably	
		найд.	лит. данные	найд.	лит. данные	найд.	лит. данные	найд.	вычисл.
C ₂ H ₅ SiCl ₂ CH ₃	18	100,5	100	1,4190	1,4240	1,0644	1,0655	33,04	33,87
C ₂ H ₅ SiCl ₂ CH ₃	18	149	147-148	1,4320	1,4312	1,0212	1,0190	43,46	43,20
C ₂ H ₅ SiCl ₂ CH ₃	25	90 (31 мм)	91 (32 мм)	1,4390	1,4390	0,9892	0,9931	52,95	52,59
C ₂ H ₅ SiCl ₂ CH ₃	13	90 (6 мм)	94 (6 мм)	1,4450	1,4440	0,9684	0,9761	62,32	61,88

Legend to Tables 2-4: 1) Compounds, 2) yield, %, 3) boiling point, 4) found, 5) from published data.

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FREYDLINA, R.Kh.; CHUKOVSKAYA, Ye.TS.

Using oxidation-reduction systems for the initiation of the reaction of 1-octene with carbon tetrachloride. Izv. AN SSSR. Utd.khim.nauk no.10:1783-1788 O '62. (MIRA 15:10)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Octene) (Carbon tetrachloride) (Oxidation-reduction reaction)

L 17067-63 EMP(j)/EPF(c)/EMP(q)/EMT(m)/BDS S/062/63/000/004/018/022
AFPTC/ASD Pc-4/Pr-4/Pad RM/WW/JD/HW/MAY

AUTHOR: Chukovskaya, Ye. Ts. and Freydlina, R. Kh.

TITLE: Addition of silicon hydrides to unsaturated compounds in the presence of nickel carbonyl

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 4, 1963, 761-763

TEXT: Nickel tetracarbonyl catalyzes the cyanoethylation of methyldichlorosilane and triethylsilane, as well as the addition of triethylsilane to acrolein at 110-120° with a yield of 60-70%. The addition leads to the formation of products containing the silyl group in the alpha-position to the functional group of the unsaturated compound. A definite congruence is noted between the capability of the unsaturated compound to form pi-complex with nickel tetracarbonyl and its capability to add silicon hydrides in the presence of nickel tetracarbonyl. The most important English-language reference reads as follows: G. N. Schrauzer, J. Amer. Chem. Soc., 81, 531 (1959); Ber., 94, 642 (1961).

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L 17067-63

S/062/63/000/004/018/022

Addition of silicon hydrides to

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR
(Institute of Organo-Elemental Compounds, Academy of Sciences
USSR)

SUBMITTED: November 21, 1962

Card 2/2

FREYDLINA, R.Kh.; CHUKOVSKAYA, Ye.TS.

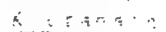
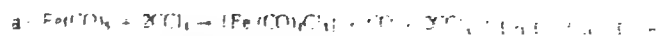
Telomerization of allyl compounds by silicon hydrides in the presence of dicyclohexylperoxydicarbonate. Dokl. AN SSSR 150 no.5:1055-1058 Je '63. (MIRA 16:8)

1. Chlen-korrespondent AN SSSR (for Freydina).
(Allyl compounds) (Polymerization) (Silane)

1.2.25-65

1000 NR. AP5001995

conducted in the presence of carbonyls of iron, cobalt, molybdenum, or tungsten, produces the same telomers as when initiated by benzoyl peroxide. The authors assume that the reaction (3) consists of the following steps:



where k_1 and k_2 are the rate constants of the first and second steps, respectively. The rate constants k_1 and k_2 are related to the equilibrium constants K_1 and K_2 by the following relations:

$$K_1 = \frac{k_1}{k_{-1}}$$

$$K_2 = \frac{k_2}{k_{-2}}$$

$$K_3 = \frac{k_3}{k_{-3}}$$

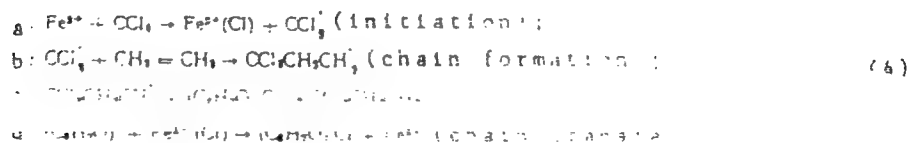
$$K_4 = \frac{k_4}{k_{-4}}$$

100,000

NR: AP5001995

in acetonitrile solution), a series of experiments with various initiators
 a quantity of about 10% of the total amount of the initiator, and

in a solution to 3, while in a solution of any
 in a solvent, a new type of initiator, namely,
 initiator," such as an alcohol, and in steps (4)
 for this case:



FREYDLINA, Ya.Kh.; CHUKOVSKAYA, Ye.TS.; CHIZHOV, Yu.P.

Effect of ethylene oxide or amines on the chain transfer
with a modifier in the telomerization of ethylene by car-
bon tetrachloride. Dokl. AN SSSR 162 no.2:359-361 My '65.
(MIRA 18:5)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
2. Chlen-korrespondent AN SSSR (for Freydlina).

L 52166-65 ENT(m)/EPF(c)/EPR/EMP(j)/EWA(c) Pc-4/Pr-4/Ps-4 RPL WW/RM
 ACCESSION NP: AP5015238

Author: Freydlina, R. Kh.; Chukovskaya, Ye. Ts.

Preparative method for 1,1,1-trifluoro-2,2,2-trichloro-3,3,3-trimethylpropane

1. Synthesis of 1,1,1-trifluoro-2,2,2-trichloro-3,3,3-trimethylpropane

2. Preparation of 1,1,1-trifluoro-2,2,2-trichloro-3,3,3-trimethylpropane

ABSTRACT: An Author Certificate has been issued for a preparative method for

1,1,1-trifluoro-2,2,2-trichloro-3,3,3-trimethylpropane, involving the reaction of 1,1,1-tri-

fluoro-2,2,2-trichloro-3,3,3-trimethylpropane with heating

ASSOCIATION: none

DATE: 31Jan63

ENCL: 00

REF: 0,0

N. FEB SOV: 000

OTHER: 000

ATI PRESS: 4018

Card 1/1

CHUKOVSKAYA, Ye.TS.; KAMISHOVA, A.A.; FREYDLINA, R.Kh.

Reactions of carbon tetrachloride with unsaturated compounds
in the presence of dicyclohexyl peroxydicarbonate or oxidation-
reduction systems. Izv. AN SSSR. Ser. khim. no.3:461-465 '65.

(MIRA 18:5)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

CHUKOVSKAYA, Ye.TS.; KAMYSHOVA, A.A.; FREYDLINA, R.Kh.

Reaction of chloroform with 1-heptene initiated by iron penta-
carbonyl in conjunction with amines. Dokl. AN SSSR 164 no.3:
602-605 S '65. (MIRA 18:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
2. Chlen-korrespondent AN SSSR (for Freydlina).

FRIDLYNA, R.Kh.; KUZ'MINA, N.A.; CHUKOVSKAYA, Ye.Ts.

Hydride transfer in the reactions of silicon hydrides with vinylalkyl and other ethers in the presence of iron pentacarbonyl. Izv. AN SSSR. Ser.khim. no.1:176-179 '66.

(MIRA 19:1)

1. Institut elementoorganicheskikh soedineniy AN SSSR. Submitted May 21, 1965.

L 36988-66 EWP(j)/EWT(m) RM

ACC NR: AP6008512

SOURCE CODE: UR/0062/66/000/001/0176/0179

AUTHOR: Freydlina, R. Kh.; Kuz'mina, N. A.; Chukovskaya, Ye. Ts. 39

ORG: Institute of Heteroorganic Compounds, Academy of Sciences, SSSR (Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR) B

TITLE: Hydride transfer in reactions of silanes with vinyl-alkyl and simple ethers in the presence of iron pentacarbonyl ^

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 1, 1966, 176-179

TOPIC TAGS: chemical reaction, silane, vinyl compound, organosilicon compound, carbonyl iron, *REACTION MECHANISM*

ABSTRACT: When silanes react with nucleophilic unsaturated compounds (olefins, vinyl-alkyl ethers) in the presence of small quantities of iron pentacarbonyl, saturated and unsaturated organosilicon compounds are formed. The reaction does not occur under the same conditions with electrophilic unsaturated compounds (acrylonitrile). The purpose of this work was to determine whether this transformation has a homolytic or heterolytic mechanism. Data are given which permit the assumption that there is a heterolytic chain mechanism engaging hydride transfer. The experiments were carried out in sealed glass ampules in an argon atmosphere. An analysis of the reaction mixture was made by the gas-liquid

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UDC: 546.287+547.27+541.124+539.175

L 36988-66

ACC NR: AP6008512

chromatography method. This method revealed that in the presence of iron pentacarbonyl the simple ethers are split off by triethylsilane with the formation of triethylalkoxysilane and hydrocarbon. Orig. art. has: 1 table.

SUB CODE: 07/SUBM DATE: 21May65/ORIG REF: 006/OTH REF: 004

Card 2/2 25

CHUKREYEV, A. (Petropavlovsk-Kamchatskiy)

He is from Kamchatka. Pozh.delo 9 no.8:19 Ag '63. (MIRA 16:9)
(Kamchatka—Firemen)

CHUKREYEV, A. G.

Lumbering-Accounting

Records of individual savings in the process of production. Les. prom. 12 no. 6, 1952.

9. Monthly List of Russian Accessions, Library of Congress, August, 1952, ~~1953~~ 1953. Unclassified.

CHUKREYEV, F.Ye.

Digit-printing device for an AI-100 analyzer. Prib. i tekhn.
eksp. 8 no.5: ~~97-102~~ S-0 '63. (MIRA 16:12)

1. Institut atomnoy energii AN SSSR.

CHUKREYEV, F. YE.

Category : USSR/Nuclear Physics - Structure and Properties of Nuclei

C-4

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3191

Author : Estulin, I.V., Popov, V.S., Chukregev, F.Ye.

Inst : Moscow State University'

Title : Polarization - Direction Correlation of Successive Gamma Quanta
From Co^{60} and Na^{24} .

Orig Pub : Zh. eksperim. i teor. fiziki, 1956, 30, No 6, 1052-1057

Abstract : Description of apparatus for measuring the polarization-direction correlation of gamma quanta emitted in cascade. This apparatus, the polarization sensitivity of which was first determined experimentally, was used to perform measurements on gamma quanta from Co^{60} and Na^{24} . The even parity of the first two excited states of Ni^{60} and Mg^{24} was proven.

Card : 1/1

CHUKREYEV F. Ye.

BALDIN, S.A.; GAVRILOVSKIY, V.V.; CHUKREYEV, F.Ye.

Scintillations in high-pressure helium induced by alpha particles.
Atom.energ. 3 no.10:331-334 0 '57. (MIRA 10:10)
(Scintillation counters)

CHUKREYEV, F.YE.

AUTHOR: Baldin, S.A., Gavrilovskiy, V.V., Chukreyev, F.Ye. 89-10-13/36
TITLE: α -Particles Induced Scintillations in High-Pressure Helium
(*Stsintillyatsii v gelii pri vysokikh davleniyakh pod deystviyem*
 α -chastits)
PERIODICAL: *Atomnaya Energiya*, 1957, Vol 3, Nr 11, pp 331-334 (USSR)

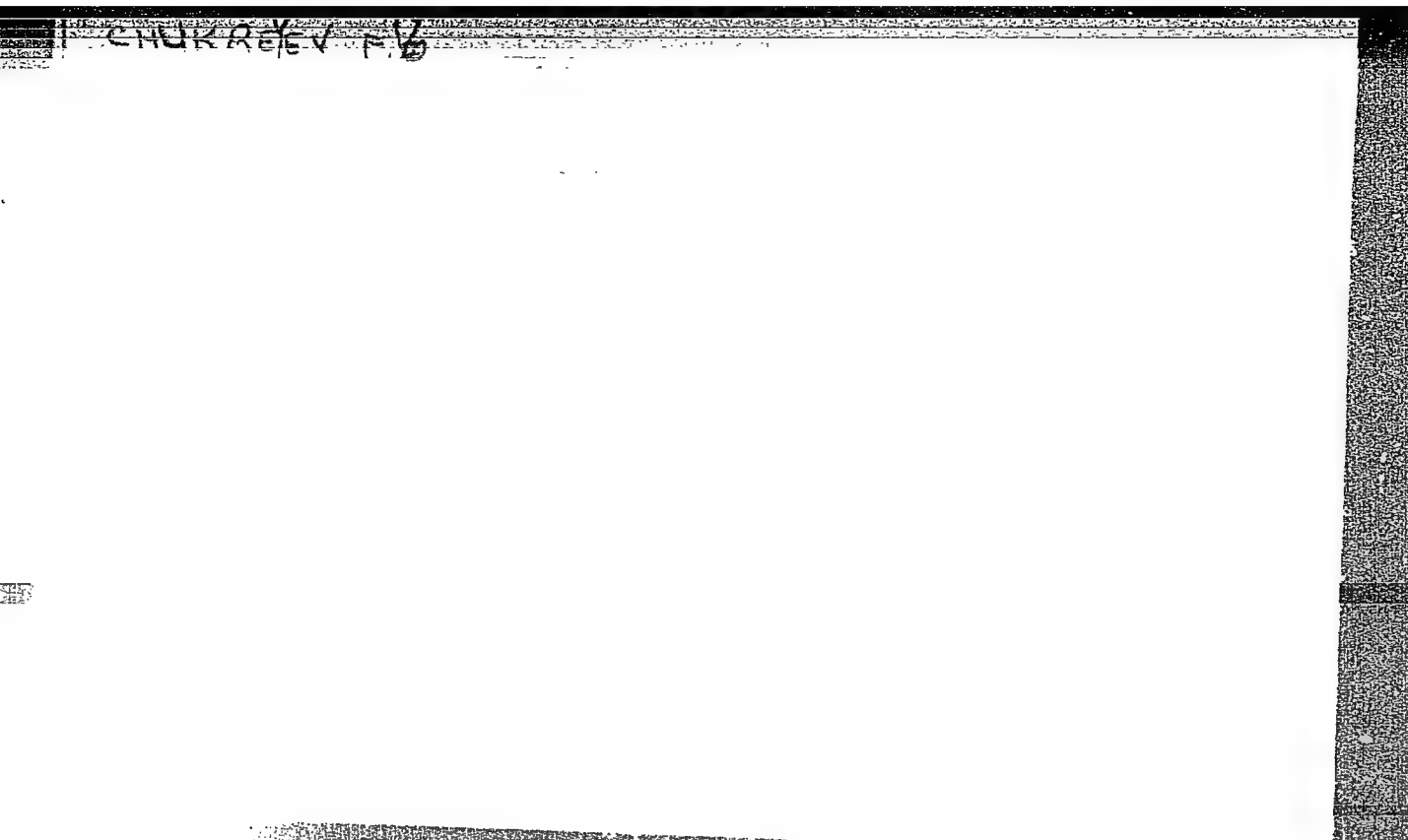
ABSTRACT: The scintillations were investigated because the attempt was made to find a sufficiently effective method of establishing the polarization degree of a neutron beam of 2 - 20 MeV. This method is based upon the registration of the coincidences between the scattered neutrons and the recoil nuclei in the scintillation chamber filled with gas which is filled with pure helium of some 10 at pressure. The dependence of the counting velocity upon pressure of the various gas mixtures (pure He, He + Xe, He + Ar, He + O₂, He + N₂) was measured and the corresponding curves are shown. There are 7 figures.

SUBMITTED: February 5, 1957
AVAILABLE: Library of Congress

Card 1/1

"APPROVED FOR RELEASE: 06/12/2000

CIA-RDP86-00513R000509110014-0



APPROVED FOR RELEASE: 06/12/2000

CIA-RDP86-00513R000509110014-0"

KARADZHAYEV, K.V.[translator]; MAN'KO, V.I.[translator]; CHUKREYEV,
F.Ye.[translator]; SMOLYAN, G.L., red.; VLASOVA, N.A.,
tekhn. red.

[Semiconductor radiation counters] Poluprovodnikovye schet-
chiki izlucheni; sbornik statei. Moskva, Gosmatomizdat,
1962. 311 p. (MIRA 16:5)

(Nuclear counters)

L 17601-63

EWT(m)/EDS

AFFTC/ASD

S/056/63/044/003/017/053

AUTHOR:

Karadzhev, K. V., Man'ko, V. I., and Chukroyev, F. Ye. 53

TITLE:

Angular distribution of particles from the $O^{18}(p, \alpha_o)N^{15}$ reaction /9

PERIODICAL:

Zhurnal eksperimental'noy i tekhnicheskoy fiziki, v. 44, no. 3,
1963, 870-877

TEXT: The $O^{18}(p, \alpha_o)N^{15}$ reaction goes through intermediate F^{19} levels, and the study of the properties of outgoing particles of this and the (p, n) and (p, γ) reactions contributed to the understanding of the properties of some 35 or so energy levels of F^{19} . The present paper describes the angular distributions of particles emitted in the $O^{18}(p, \alpha_o)N^{15}$ reaction, studied for angles between 30 and 150° (laboratory system) and for proton energies between 730 and 1050 kev in 12 steps. (Protons originated from an electrostatic generator; α counters had an 1% resolving power with the 6,100 kev Cm^{242} α particles.) The experimental data are analyzed on the basis of the resonance theory of nuclear reactions. The spin and parity and partial reduced widths for the 8.89 Mev level in the F^{19} nucleus are found to be $\frac{1}{2}^+$, $O_p^2 = 2.4 \cdot 10^{-4}$, $O_\alpha^2 = 5.5 \cdot 10^{-3}$ respectively. It is concluded that

Card 1/2

L 17601-63

8/056/63/044/003/017/053

Angular distribution of particles...

with a high probability α associations of nucleons are formed in the P^{19} nucleus in this state. There are 4 figures.

SUBMITTED: October 24, 1962

Card 2/2

KARADYEV, V. V.; MANKO, V. I.; CHUKREYEV, F. Ye.

"Properties of the F^{19} nucleus levels excited in the reaction $O^{18}(p,)N^{15}$."

report submitted for Intl Conf on Low & Medium Energies Nuclear Physics,
Paris, 2-8 Jul 64.

Kurchatov Inst, Moscow.

L 13948-65 EWT(m) DIAAP/AFWL/SSD

ACCESSION NR: AP4047883

S. 0154 1/1 1198 1198

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki: v. 47,
no. 4, 1185-1198

Topics: proton alpha reaction, angular distribution, energy
of alpha particle, etc.

This is a continuation of an earlier work (ZhETF v. 44, 870, 1963), where the technique employed
was described. The energy range
was 10-15 MeV.
The results are presented in the form of
graphs and tables.

Card 1/3

13948-65

MISSION NR: AP4047883

energy dependence of the ...

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... of the particle yield at 34.5 and 120.5° in the p.m.s. was

The analysis of the results of

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L 13948-65

ACCESSION NR: AP4047883

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of the reduced α -particle to reduced nucleon width is greatly
in most cases; this ratio is

A. I. Radtsig, P. Grech, and
"efficient operation." Orig. art. has: 9 figures, 2 formulas and 1

ASSOCIATION: None

SUBMITTED: 04Apr64

ENCL: 00

SUB CODE: NP

NR REF SOV: 002

OTHER: 014

Card 3/3

L 33284-66

ACC NR: AR6017194

SOURCE CODE: UR/0058/65/000/012/A032/A032

AUTHOR: Karnaukhov, N. D.; Chukrayev, F. Ye.

TITLE: Transistor attachment for the introduction of a two-group operating mode in the AI-100 analyzer

SOURCE: Ref. zh. Fizika, Abs. 12A311

REF SOURCE: Tr. 6-y Nauchno-tekh. konferentsii po yadern. radioelektron. T. 2. M., Atomizdat, 1965, 30-33

TOPIC TAGS: pulse height analyzer, transistorized circuit, pulse counting, multi-channel analyzer/ AI-100 pulse height analyzer

ABSTRACT: A transistor attachment for the AI-100 analyzer is described; it permits a two-group registration of pulses. In the development of the elements and of the circuit of the attachment, special attention was paid to the following questions: a) possibility of operation of the analyzer in the 100-channel variant and the smallest changes in its circuitry; b) linear registration of pulses from the first detector from the 1st to the 49th channels, and linear registration from the second detector from the 51st to the 99th channel; c) pulses of the first group must not be registered in the second group and vice-versa. The complete schematic diagram of the attachment is presented, and the operation of the analyzer with the attachment in the two-group mode is considered in detail. Structurally the attachment is in the form of a separate block, which is connected by means of a plug disconnect to the input unit of the analyzer. L. S. [Translation of abstract]

SUB CODE: 20, 09

Card 1/1

L 35372-66 EWT(d)/EWP(1) IJP(c) BB/GG

ACC NR: AR6017790

SOURCE CODE: UR/0058/66/000/001/A044/A044

AUTHORS: Karnaukhov, N. D.; Chukreyev, F. Ye.

TITLE: Transistorized number printer for the Al-100 analyzer

SOURCE: Ref. zh. Fizika; Abs. 1A396 ¹⁶⁰ ₂₄ ₁₀

REF SOURCE: Tr. 6-y Nauchno-tekhn. donferentsii po yadern. radioelektron. T. 2. M., Atomizdat, 1965, 120-124

TOPIC TAGS: spectrum analyzer, computer output, data readout/Al-100 ^{spectrum} analyzer

ABSTRACT: The proposed number printer is divided into three parts: the code block, the commutation unit, and the control circuit. The process of writing out the readings from one decade or group of four flipflops, with a scale factor 16, is considered. The commutation unit is intended to produce the required access sequence of the analyzer flipflops. The printer develops a signal denoting the end of the channel for the control circuit. The latter performs the function of the operator in the case of manual writing down of the spectrum. V. L. [Translation of abstract]

SUB CODE: 20, 09

Card 1/1 *ldh*

USSR/Engineering - Architecture

Card : 1/1 Pub. 106 - 5/9

Authors : Chukreev, N. G., Engineer

Title : Interior architectural works of the new Moscow State University

Periodical : Stroi. prom. 7, 28 - 33, July 1953

Abstract : Structural data regarding the interior of the new Moscow State University.
Illustrations; drawings; diagrams.

Institution : ...

Submitted : ...

CHUKREYEV, Nikolay Grigor'yevich

CHUKREYEV, Nikolay Grigor'yevich

[The use of plastic materials in the manufacturing of large panels]
Primenenie formoplasta v proizvodstve krupnykh paneli. Moskva,
Gos.izd-vo lit-ry po stroit. i arkhitekt., 1955. 23 p. (MIRA 11:1)
(Building materials) (Wall board)

CHUKREYEV, Nikolay Grigor'yevich, inzh.; TEMKIN, L.Ye., inzh., nauchnyy
red.; GUROV, Yu.S., red.izd-va; SOLNITSHEVA, L.M., tekhn.red.;
TEMKINA, Ye.L., tekhn.red.

[Using powdered-fuel cinders in large-panel construction] Ispol'-
zovanie sol pylevidnogo topliva dlia drupnoblochnogo stroitel'stva.
Moskva, Gos.izd-vo lit-ry po stroit., arkhitekt. i stroit.materialam,
1959. 79 p. (MIRA 12:5)

(Cinder blocks)

"APPROVED FOR RELEASE: 06/12/2000

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SOV/81-59-14-50262

Translation from: Referativnyy zhurnal, Khimiya, 1959, Nr 14, p 322 (USSR)

AUTHORS: Smirnov, M.V., Chukreyev, N.Ya., Yushina, L.D.

TITLE: The Anode Dissolution and Self-Dissolution (Corrosion) of Beryllium and Thorium¹ in Molten Chlorides of Alkali Metals

PERIODICAL: Tr. in-ta khimii Ural'skiy fil. AS USSR, 1958, Nr 2, pp 171 - 176

ABSTRACT: The behavior of Be and Th in smelts has been studied. The anode dissolution of metals is accompanied by a high concentration polarization. Be passes into the smelt mainly in the form Be^+ and partially in the form Be^+ [sic!]. Th is dissolved mainly in the form of the subion Th^+ , which intensifies the destructive action of the smelt on the lining. $D_a \leq 0.1 \text{ a/cm}^2$, or the admixtures pass into the smelt. The corrosion of Th, Be, Zr and Ti has an electrochemical nature and proceeds with the formation of subions of alkali metals.

K. Krivolutskiy

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68946

5. 4600

SOV/81-59-24-85498

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 24, p 115 (USSR)

AUTHORS: Chukreyev, N.Ya., Smirnov, M.V.

TITLE: Polarization of Oxide-Carbon Anodes of Beryllium in Molten Chlorides

PERIODICAL: Tr. In-ta metallurgii. Ural'skiy fil. AS USSR, 1958, Nr 4, pp 45 - 50

ABSTRACT: In continuation of the works published earlier (RZhKhim, 1957, Nr 11, 37300; 1958, Nr 21, 70226) the polarization of oxide-carbon anodes of beryllium with a variable content of carbon was studied in melts of chlorides of alkali metals at i from $1 \cdot 10^{-4}$ to 1 a/cm^2 and a temperature of 700°C . The analysis of the polarization curves shows that at low current densities the following reaction takes place on the anode: $\text{BeO} + \text{C} - 2e \rightarrow \text{Be}^{2+} (\text{molten}) + \text{CO}_2$. On attaining the current density limit (0.1 a/cm^2) the discharge of the Cl^- ion takes place: $2\text{Cl}^- - 2e \rightarrow \text{Cl}_2$ with the subsequent secondary reaction: $2\text{BeO} + \text{C} + \text{Cl}_2 \rightarrow 2\text{BeCl}_2 + \text{CO}_2$; due to the latter reaction a further increase in i occurs.

Card 1/1

B. Lepinskikh

AUTHORS: Smirnov, M. V., Chukreyev, N. Ya. SOV/78-3-11-3/23

TITLE: Investigation of the Thermodynamic Reaction of the Reduction of Beryllium Oxide With Carbon (Izucheniye termodinamiki reaktsii vosstanovleniya okisi berilliya uglerodom)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 11, pp 2445-2449 (USSR)

ABSTRACT: The reduction of beryllium oxide with carbon electrodes in a melt of NaCl and KCl containing BeCl_2 was investigated. A carbon monoxide electrode produced by means of charging the carbon with the pure gas mixture CO and CO_2 served as electrode. The electric conductivity of the melting mixture was investigated in the range of 682 - 1040°C. The electrochemical difference of the potentials between the carbon electrode and the metallic beryllium electrode in the alkali chloride melt is

$E = (2,036 - 5,16 \cdot 10^{-4}T) \pm 0,005 \text{ V.}$

The change of the isobaric potentials of the reaction

$\text{Be} + 1/2 \text{ CO}_2 = \text{BeO}_2 + 1/2 \text{ C}_{\text{graphite}}$

$\Delta Z = (-93908 + 23,80 T) \pm 230 \text{ cal}$ was investigated.

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Investigation of the Thermodynamic Reaction of the Reduction of Beryllium
Oxide With Carbon

SOV/78-3-11-3/23

The entropy value of the beryllium oxide is $S_{\text{BeO}}^0 = 3,37 \pm 0,05$
cal/degree. This value agrees with that given in publications.
There are 2 figures, 1 table, and 21 references, 10 of which
are Soviet.

ASSOCIATION: Ural'skiy filial Akademii nauk SSSR, Laboratoriya elektrokhimii
(Ural Branch, AS USSR, Electrochemical Laboratory)

SUBMITTED: October 2, 1957

Card 2/2

AUTHORS: Smirnov, M. V., Chukreyev, N. Ya. SOV/76-32-9-33/46

TITLE: The Anodic Dissolution of Metals in Molten Salts (Anodnoye rastvoreniye metallov v solevykh rasplavakh) II. Beryllium (II. Berilliy)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 9, pp 2165-2173 (USSR)

ABSTRACT: The dissolution of a beryllium anode in a eutectic melt of LiCl and KCl was investigated. The apparatus used is shown in figure 1. The results are summarized in a table. At 500°C and with a lowered current density (of the order of 10 A/cm²) about one third of the beryllium enters the electrolyte as a univalent ion. Furthermore the polarization of the beryllium anode was investigated. The electrolytic cell is illustrated in figure 2. The electrolyte was again LiCl - KCl eutectic, at temperatures of 400°, 500°, 600°, and 800° C, and with current densities of 10⁻³ to 5 A/cm² (Figs 3,4, and 5). The anode potential increased in this case from 0,7 to 0,8 V. Below 0,01 A/cm² the anode potential does not vary with the current density and

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The Anodic Dissolution of Metals in Molten Salts. II. SOV/76-32-9-33/46
Beryllium

lies close to the potential of beryllium in alkali chloride melts without electrolysis. The following equation is valid with current densities between 0,01 and 0,1 A/cm²:

$$\varphi = \text{const} + \frac{RT}{2F} \lg i \quad (i \dots \text{current density}).$$

At still higher current densities the anode potential suddenly jumps higher until the equilibrium potential for Be - BeCl is almost reached. The addition of fluoride to the melt sharply displaces the beryllium potential to negative values (Figs 7 and 8). In fluoride-chloride melts the potential of the beryllium anode varies with the current density (0,001 to 5 A/cm²) from 1,2 to 1,4 V. There are 8 figures, 1 table, and 6 references, 3 of which are Soviet.

ASSOCIATION: Ural'skiy filial Akademii nauk SSSR, Sverdlovsk (Ural Branch AS USSR, Sverdlovsk)

SUBMITTED: April 19, 1957

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2

5(2)

05871

AUTHORS:

Smirnov, M. V., Chukreyev, N. Ya.

SOV/78-4-11-24/50

TITLE:

The Behavior of Beryllium in Fused Salt Baths in the Presence of Metallic Beryllium

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 11, pp 2536 - 2543 (USSR)

ABSTRACT:

Alkaline- earth metals are dissolved in their chlorides under the formation of subchlorides. The authors found also for beryllium (Ref 3) that the Be^+ ion is present in chloride melts in addition to the Be^{2+} ion. In order to confirm this result, the reaction of metallic Be in alkali-chloride melts is investigated here within the temperature range $351-600^\circ$. The reaction $\text{Be}^{2+} + \text{Be} = 2\text{Be}^+$ is measured by variation of the redox potential of a molybdenum electrode. The redox potential varied by 1.3 v, and thus allowed for the determination of the smallest Be^+ quantities. To make sure whether this was really a variation of the redox potential of the molybdenum electrode, the authors compared the potentials of the molybdenum electrode and the beryllium electrode with those of a chlorine electrode (Table 1). The Be electrode had a constant potential of -2.44 v

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The Behavior of Beryllium in Fused Salt Baths in
the Presence of Metallic Beryllium

05871

SOV/78-4-11-24/50

whereas the potential of the Mo electrode dropped from -1.13 v to -1.82 v. Figure 1 shows the course of the redox potential during the experiments which were extended to 30 h. The potentials of the Mo and Be electrode could not be fully compensated because the surface of the latter was passivated. The weight loss of the Be anode was measured for the purpose of determining the equilibrium constant of the reaction $\text{Be}^{2+} + \text{Be} \rightleftharpoons 2 \text{Be}^+$. The scheme of figure 2 shows the apparatus used. A eutectic LiCl-KCl melt served as electrolyte, the anode and cathode space were separated by a BeO pot, and the cathode was made of molybdenum wire. Results of 20 experiments are listed in table 2. As the Be anode corrodes in addition to the anodic dissolution of Be, the authors determined the dissolution rate of Be in chloride melts at the same experimental temperatures (Fig 3). The results corrected in consideration of the corrosion of Be in chloride melts and the equilibrium constant calculated for the experimental temperatures are listed in table 3. Figure 4 shows the temperature dependence of the equilibrium constant which satisfies the empirical equation

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The Behavior of Beryllium in Fused Salt Baths in
the Presence of Metallic Beryllium

SOV/78-4-11-24/50

$\log K = (2.36 - 4904/T) \pm 0.10$. The corrosion of beryllium (Fig 5) is accelerated by the addition of fluorine ions, the equilibrium of the reaction $\text{Be}^{2+} + \text{Be} \rightleftharpoons 2\text{Be}^+$ is, however, shifted toward the left member due to the formation of complex BeF_4^{2-} anions. There are 5 figures, 3 tables, and 10 references, 4 of which are Soviet.

ASSOCIATION: Ural'skiy filial Akademii nauk SSSR, Institut elektrokhimii
(Ural Branch of the Academy of Sciences, USSR, Institute of
Electrochemistry)

SUBMITTED: July 24, 1958

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5(4)

SOV/20-127-5-37/58

AUTHORS: Smirnov, M. V., Chukreyev, N. Ya.

TITLE: The Redox Potential of the System $\text{Be}^+/\text{Be}^{++}$ in a Melt of Alkali Metal Chlorides

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 5, pp 1066-1069 (USSR)

ABSTRACT: In preceding papers (Refs 1,2) the authors found that in chloride melts which are in contact with metallic beryllium, besides Be^{++} - also Be^+ -ions are contained. There follows the determination of $E_{\text{Be}/\text{Be}^+}^0$, $E_{\text{Be}/\text{Be}^{++}}^0$, and $E_{\text{Be}^+/\text{Be}^{++}}^0$ on the basis of the corresponding thermodynamic equations for the equilibrium potentials of Be and its mono- and bivalent ions, and the determination of the redox potential of the system $\text{Be}^+/\text{Be}^{++}$ in salt melts. Measurement of the equilibrium potential was carried out in a temperature interval 380-940° in a measuring cell, which is shown by figure 1. As an electrolyte, an eutectic melt of LiCl and KCl in argon atmosphere was used. Figure 2 shows the variation of the electromotive force of the cell $\text{Be} | \text{BeCl}_2, \text{LiCl}, \text{KCl} | \text{Cl}_2, \text{C}$ with temperature. The isothermal line of the equilibrium potential of the beryllium electrode

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The Redox Potential of the System $\text{Be}^+/\text{Be}^{++}$ in a Melt of Alkali Metal Chlorides

SOV/20-127-5-37/58

($E - \lg [\text{Be}]$, Fig 3) calculated on the basis of the experimental data, confirms that the melt contains Be^+ -ions, the concentration of which decreases with increasing temperature. Table 1 shows the results of calculation for melts with different beryllium content in the temperature interval 700 - 1200°K. Figure 4 shows the temperature dependence for $E_{\text{Be}/\text{Be}^+}^0$ and $E_{\text{Be}/\text{Be}^{++}}^0$.

Empirical equations are written down for this temperature dependence, and the constants of the thermodynamic equation for the redox potential of the system $\text{Be}^+/\text{Be}^{++}$ are calculated. There are 4 figures, 1 table, and 3 Soviet references.

ASSOCIATION: Institut elektrokhemii Ural'skogo filiala Akademii nauk SSSR
(Institute of Electrochemistry of the Ural Branch of the Academy of Sciences, USSR)

PRESENTED: April 13, 1959 by A. N. Frumkin, Academician

SUBMITTED: April 13, 1959

Card 2/2

CHUKREYEV, N.Ya., otv. za vyp.

[Abstracts of reports of the All-Union Conference on the Physical Chemistry of Fused Salts and Slags] Tezisy докладов Всесоюзного совещания по физической химии расплавленных солей и шлаков. Sverdlovsk, Akad. nauk SSSR, 1960. 70 p. (MIRA 15:12)

1. Vsesoyuznoye soveshchaniye po fizicheskoy khimii rasplavlen-nykh soley i shlakov.

(Fused salts) (Slag)

23080

54600

1043, 1305, 1241

S/078/61/006/006/013
B110/3206

AUTHORS: Smirnov, M. V., Chukreyev, N. Ya.

TITLE: Effect of the nature of alkali-metal cations on the
equilibrium potential of beryllium in chloride melts

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 6, 1961, 1361-1368

TEXT: In analogy to the experimentally proved effect of the anions on the values of the electrode potentials, the effect of the cations of the molten alkali salt (serving as solvent) on the potentials was presumed by V. A. Pleskov et al. (Uspekhi khimii, 16, 254 (1946)). In order to clarify this dependence, the authors investigated the equilibrium potentials of beryllium in LiCl melts and the eutectic mixture LiCl + KCl, KCl and CsCl with 0.46 to 10.1 mole % BeCl₂ in a wide temperature range. They restricted themselves to low BeCl₂ concentrations, which behaved like ideal solutions and satisfied the Nernst equation. Chemically pure LiCl, KCl and CsCl and BeCl₂ produced from BeO and CCl₄ served as initial substances. The melt was filled into the beryllium oxide crucible. The

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Effect of the nature of alkali-metal ...

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cylindrical Be electrode with a diameter of 5-10 mm contained only 0.01% electronegative impurities. A carbon-chlorine electrode served as reference electrode. Under equal working conditions (constant temperature and rate of introduction of chlorine), the potentials of the chlorine electrode and the Be electrode were almost equal in the electrolytes LiCl, KCl and CsCl. The emf measurements with various electrolytes (Fig. 2) correspond to the following empirical equations:

2.00 mol % BeCl₂ + LiCl at 649-805°: $E_1 = 2.527 - 3.73 \cdot 10^{-4} \cdot T \pm 0.003 \text{ v}$
 0.46 mol % BeCl₂ + LiCl at 620-880°: $E_2 = 2.522 - 2.77 \cdot 10^{-4} \cdot T \pm 0.004 \text{ v}$
 8.17 mol % BeCl₂ + 3LiCl + 2KCl at 421-755°: $E_3 = 2.703 - 4.97 \cdot 10^{-4} \cdot T \pm 0.008 \text{ v}$
 1.2 mol % BeCl₂ + 3LiCl + 2KCl at 393-940°: $E_4 = 2.858 - 3.56 \cdot 10^{-4} \cdot T \pm 0.005 \text{ v}$
 9.77 mol % BeCl₂ + KCl at 779-1007°: $E_5 = 2.692 - 3.62 \cdot 10^{-4} \cdot T \pm 0.002 \text{ v}$
 0.60 mol % BeCl₂ + KCl at 798-1023°: $E_6 = 2.637 - 1.86 \cdot 10^{-4} \cdot T \pm 0.003 \text{ v}$
 10.1 mol % BeCl₂ + CsCl at 686-930°: $E_7 = 2.807 - 4.43 \cdot 10^{-4} \cdot T \pm 0.005 \text{ v}$
 0.47 mol % BeCl₂ + CsCl at 695-950°: $E_8 = 2.790 - 2.91 \cdot 10^{-4} \cdot T \pm 0.005 \text{ v}$

and agreed well with the values by L. Jang and R. G. Hudson (Trans Metallurg. Soc. AIME, 215, 589 (1959). If the thermo emf $E_T = (-0.0076 + 0.174 \cdot 10^{-4} T) \pm 0.001 \text{ v}$ is inserted, the following is obtained:

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$$\begin{aligned} E_1 &= -2,519 + 3,56 \cdot 10^{-4} \cdot T \pm 0,004 \text{ V} \\ E_2 &= -2,514 + 2,77 \cdot 10^{-4} \cdot T \pm 0,005 \text{ V} \\ E_3 &= -2,695 + 4,80 \cdot 10^{-4} \cdot T \pm 0,009 \text{ V} \\ E_4 &= -2,650 + 3,39 \cdot 10^{-4} \cdot T \pm 0,006 \text{ V} \\ E_5 &= -2,684 + 3,49 \cdot 10^{-4} \cdot T \pm 0,003 \text{ V} \\ E_6 &= -2,629 + 1,69 \cdot 10^{-4} \cdot T \pm 0,004 \text{ V} \\ E_7 &= -2,799 + 4,25 \cdot 10^{-4} \cdot T \pm 0,006 \text{ V} \\ E_8 &= -2,782 + 2,74 \cdot 10^{-4} \cdot T \pm 0,006 \text{ V} \end{aligned}$$

On the basis of the investigation results, the isotherms for LiCl (I), 3 LiCl + 2 KCl (II), KCl (III), and CsCl (IV)-melts were built up, the inclination of which for the value $n < 2$ corresponds to the coefficient before the logarithm of the thermodynamic equation of the electrode potential: $E = E_{\text{Be/Be}}^0 + (RT/nF) \cdot \ln [\text{Be}]$, if the ion part of the beryllium concentration in the electrolyte is inserted. In BeCl_2 melts with (I), n rises from 1.93 (700°K) to 1.64 (1200°K); with (III), from 1.82 (1100°K) to 1.73 (1300°K); with (IV), from 1.96 (1000°K) to 1.82 (1200°K). If the mean valence of Be and its total concentration in the melt are known, $E_{\text{Be/Be}}^0$ can be calculated from the equation of the electrode

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potential: $E = E_{\text{Be/Be}^{2+}}^0 + (2.3 RT/2F) \cdot \lg [\text{Be}^{2+}]$. The following equations hold: LiCl melt: $E_{\text{Be/Be}^{2+}}^0 = -2.538 + 5.7 \cdot 10^{-4} \cdot T$ v; 3 LiCl + 2 KCl melt: $E_{\text{Be/Be}^{2+}}^0 = -2.702 + 6.4 \cdot 10^{-4} \cdot T$ v; KCl melt: $E_{\text{Be/Be}^{2+}}^0 = -2.727 + 5.3 \cdot 10^{-4} \cdot T$ v; CsCl melt: $E_{\text{Be/Be}^{2+}}^0 = -2.834 + 5.9 \cdot 10^{-4} \cdot T$ v. The effect of the metal cations gets evident through the difference of LiCl and CsCl which amounts to 0.276 v at 1000°K. The effective cation radius r_{ef} in the equimolecular sodium- and potassium chloride is $r_{\text{ef}} = (r_{\text{Na}^+} + r_{\text{K}^+})/2 = (0.98 + 1.33)/2 = 1.16$. The ion potential is then: $e/r = 1/1.16 = 0.862$ and $E_{\text{Be/Be}^{2+}}^0 = -2.718 + 5.83 \cdot 10^{-4} \cdot T$ v. The difference between the E^0 values in different melts equals the emf: $E = E_{\text{Be}'/\text{Be}^{2+}}^0 - E_{\text{Be}''/\text{Be}^{2+}}^0$ of the galvanic element $\text{Be/BeCl}_2, \text{Me}'\text{Cl/BeCl}_2, \text{Me}''\text{Cl/Be}$. It is a direct measure for the change of the isobaric potential at a transition of the Be^{2+} ions from the melt with lower bond energy to the chlorine anion in

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Effect of the nature of alkali-metal ...

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the melt with higher bond energy. The emf with the biggest value, that of the element Be/BeCl₂, CsCl//BeCl₂, LiCl/Be is: $E_{Be/Be^{2+}(LiCl)}^0$

- $E_{Be/Be^{2+}(CsCl)}^0 = 0.296 - 0.2 \cdot 10^{-4} \cdot T$ v. For the reaction of the melts $Li_2BeCl_4 + 2 CsCl = 2 LiCl + Cs_2BeCl_4$, $\Delta Z = -13650 + 0.92 \cdot T$ cal/mole BeCl₂. Here, $\Delta H = -13.6$ kcal/mole BeCl₂ and $\Delta S = 0$. For Cs₂BeCl₄, the bond energy of the chlorine anions with Be²⁺ is higher than for Li₂BeCl₄ melts.

The constancy of the entropy is proof of a constant ion grouping. According to the authors' data, the following holds for the reaction of the melts: $Li_2BeCl_4 + 2 KCl = 2 LiCl + K_2BeCl_4$, $\Delta Z = -8700 - 0.18 \cdot T$ cal/mole BeCl₂. The bond energy of the anion BeCl₄ in Cs₂BeCl₄ is still higher by 5 kcal/g ion. The strength or weakness of the bond of Be²⁺ with the chlorine anions thus depends on the ion potential of the salt cations. The isobaric potential for the transition of a BeCl₂ solution in a metal chloride melt with the ion potential e'/r into the solution of a melt

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with the ion potential $e"/r$ is: $\Delta Z = 19833 [(e"/r) - (e'/r)]$ cal/g ion $BeCl_2$. There are 8 figures and 27 references: 21 Soviet-bloc and 6 non-Soviet-bloc. The references to the English-language publications read as follows: Ref. 3: K. K. Stern. J. Phys. Chem., 60, 579 (1955); Ref. 11: L. Jang, R. G. Hudson: J. Electrochem. Soc., 106, 986 (1959); Ref. 10: H. Laitinen, J. W. Pankey. J. Amer. Chem. Soc., 81, 1053 (1959).

ASSOCIATION: Ural'skiy filial Akademii nauk SSSR, Institut elektrokhimii (Ural Branch of the Academy of Sciences USSR, Institute of Electrochemistry).

SUBMITTED: May 4, 1960

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Effect of the nature of alkali-metal ...

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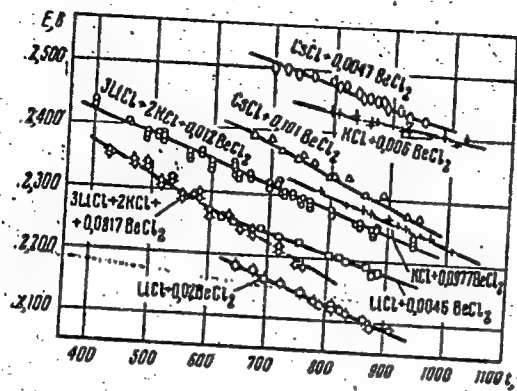


FIG 2

Fig. 2: Temperature dependence of the emf of the container with chlorine- and Be electrodes in melts of various composition

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SMIRNOV, M.V.; CHUKREYEV, N.Ya.

Study of equilibrium between metals and fused salts by the
electromotive force method as exemplified by beryllium in
chloride melts. Trudy Inst. elektrokhim. UFAN SSSR no.3:
3-15 '62. (MIRA 16:6)

(Beryllium) (Alkali metal chlorides)
(Electromotive force)

SMIRNOV, M.V.; KOMAROV, V.Ye.; CHUKREYEV, N.Ya.

Fluoride complexes of beryllium in a chloride-fluoride melt. Zhur.
neorg. khim. 10 no.9:2001-2005 S '65. (MIRA 18:10)

SOV/24-59-2-15/30

AUTHORS: Polovko, A. M., Chukreyev, P. A. (Leningrad)

TITLE: On Accelerating the ~~Testing of the~~ Reliability of Electric Elements in Engineering Systems (Ob uskorennom ispytanii nadezhnosti elektroelementov tekhnicheskikh sistem)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1959, Nr 2, pp 99-103 (USSR)

ABSTRACT: One of the characteristics of the reliability is so-called intensity of failures λ , which can be expressed as:

$$\lambda = \frac{n(t)}{N(t)\Delta t},$$

i.e. the ratio of the number of failures to the total number of correctly working elements per unit of time. Knowing the intensity λ_i of the component elements the probability of the correct work during an interval t can be expressed as:

$$p(t) = \exp \left(- \sum_{i=1}^N \lambda_i t \right)$$

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On Accelerating the Testing of the Reliability of Electric Elements
in Engineering Systems

where N - number of elements, λ_i - intensity of failure of the elements of i -th type. When composite elements are considered, the relationship of the intensity of the failures to the loading coefficient k should be known, since the relationship $\lambda = f(k)$ can only be found statistically. This requires usually considerable time in order to collect the necessary data. As an example, Table 1 illustrates the proportion of failures per 1000 hours of work (second column) and time t in thousands of hours elapsing between two failures (third column) for various electrical apparatus (first column - electrovacuum apparatus, condensers, resistors, relays, rotating apparatus, inductive coils). The acceleration in obtaining the data on the reliability of the electrical elements can be obtained when $\lambda = f(k)$ is considered not at random, but can be calculated analytically. It can be assumed that the ratio of the intensity of failures to the loading coefficient is expressed as $\lambda = a + bk + ck^2$.

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SOV/24-59-2-15/30

On Accelerating the Testing of the Reliability of Electric Elements in Engineering Systems

There are various methods of determining the coefficients a , b and c . As an example, a method is shown in the case of condensers and resistors. The intensity of failures λ (percentage per 5000 hours) related to the coefficient k is shown in Fig 1, where 1 indicates the mica condenser, 2 - carbon resistor, 3 - paper condenser, 4 and 5 - ceramic condensers of first and second type respectively, 6 represents the wire resistor. The ratios are approximated in the form of coupled segments (Ref 4) which is explained in Fig 2. Here the curvature of the curves is greater in the region of mean values of k . They can be approximated to a straight line for other values of C , i.e. they can be expressed by an equation of the type Eq (1), where c and d - slope of the curve, $\lambda - \lambda_0 = f(k)$ for large and small k . The formula (2) can be used when n is expressed as a linear function of k , i.e. where k_1 - maximum loading. The calculation can be simplified when the coefficients a , b , m and n are determined by an approximate method. Their values are shown in Table 2,

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On Accelerating the Testing of the Reliability of Electric Elements
in Engineering Systems

where the top figure is found graphically and the bottom one from the expression (3). The method described can only be applied to simple electric elements since in more elaborate systems the curve $\lambda = f(k)$ may differ from that shown in Fig 2. There are 2 tables, 2 figures and 4 references, of which 2 are Soviet and 2 English.

SUBMITTED: November 21, 1958.

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SOV/24-59-3-26/33

AUTHORS: Smolitskiy, Kh. L. and Chukreyev, P. A. (Leningrad)

TITLE: On the Comparison Between the Significance of Single-Elements and General Samplings

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1959, Nr 3, pp 176-178 (USSR)

ABSTRACT: Single element sampling takes place when every element is tested individually for rejects while general sampling takes place when whole systems are tested. The calculation of general sampling is based on the probability Eq (1) where m is the number of systems, while the single element method is based on Eq (2). When comparing both equations it can be shown that $p_{p_1}^{(m)} = p_{p_2}^{(m)}$ for $m = 1$. Then it can be stated that the probability of the regular working of the system, consisting of k elements, $A_m^{(k)}$, is defined by Eqs (4) to (7). When the function $f(q)$ (Eq 8) is introduced, then

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On the Comparison Between the Significance of Single-Elements and
General Samplings

it can be shown that Eq (9) is true for the condition (10).
Generally, it can be stated that the greater m, n, q_i
then the smaller the difference between the single element
and general samplings. There are 3 Soviet references.

SUBMITTED: January 27, 1959.

Card 2/2

SMOLITSKIY, Kh.L. (Leningrad); CHOKREYEV, P.A. (Leningrad)

Question of optimum reservation of apparatus. Izv. AN SSSR. Otd.tekh.
nauk. Energ. i avtom. no.4:79-85 JI-Ag '59, (MIRA 12:11)
(Automatic control)

86271

13.2941

S/108/60/015/008/010/010/XX
B019/B063

AUTHORS: Smolitskiy, Kh. L., Chukreyev, P. A.
TITLE: A Quantitative Characteristic of Reliability
PERIODICAL: Radiotekhnika, 1960, Vol. 15, No. 8, pp. 74-80

TEXT: Proceeding from the fact that the various elements of industrial apparatus have different periods of service (due to the fact that some elements are replaced after some time, while others are not), the authors define a characteristic of reliability which he calls the mean failure frequency. The total failure frequency of a system is given as

$\omega_c(t) = \sum_{i=1}^K N_i f_i(t)$ (2), where N_i is the number of elements in a system of the i -th kind, and $f_i(t)$ is the mean failure frequency of the elements of the i -th kind. It is shown that ω_c tends to a constant value for $t \rightarrow \infty$. Finally, the mean failure frequencies are calculated for some frequently occurring distributions of the out-of-operation time

Card 1/2

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A Quantitative Characteristic of
Reliability

S/108/60/015/008/010/010/XX
B019/B063

(exponential distribution, equally probable distribution, Rayleigh
distribution, and normal distribution). B. R. Levin (Ref. 2) is mentioned. ✓
There are 2 figures and 3 Soviet references.

SUBMITTED: November 22, 1959

Card 2/2

BRYAKALOV, G.A. (Leningrad); DOBRONRAVOVA, I.K. (Leningrad);
CHUKREYEV, P.A. (Leningrad); YUSUPOV, R.M. (Leningrad)

Solution of a logic problem using an analog computer. Izv.
AN SSSR. otd. tekhn. nauk. tekhn. kib. no.3:168-176 My-Je '63.
(Electronic analog computers) (MIRA 16:7)

POPOV, K.V.; CHUKOTEV, V.K.

Evaluating the thermal conditions of the Siberian winter as
related to the cold resistance of technical equipment. Dokl.
Inst. geog. Sib. i Dal', Vost. no.3:20-28 '63.

(MIRA 18:12)

CHUKREYEV, V. K.

"Appraisal of the Water Regime of Soil and Experiments in Its Regulation." Cand
Agr Sci, Leningrad Agricultural Inst, Min Higher Education USSR, Leningrad, 1954.
(KL, No 2, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational
Institutions (13)

SO: Sum. No. 598, 29 Jul 55

USSR / Soil Science Tilling. Melioration. Erosion.

J

Abs Jour : Ref Zhur - Biologiya, No 11, 1958, No. 48694

Author : Chukreyev, V. K., *Cand. Agricultural Sci.*

Inst : ~~AP Union Academy of Agricultural Sciences~~

~~Izvestiya V. I. Lenin Leningrad Agr. Inst.~~

Title : Mole-Draining the Soils as a Method of
Controlling Their Water-Air Regime

Orig Pub : Dokl. VASKHNIL, 1957, No 8, 44-48

Abstract : The mole-draining of poorly permeable dust-like
soils together with the simultaneous deepening
of the tillable layer in the Prinev lowland
on the territory of Leningradskaya Oblast'
promoted improved physical and, especially,
water properties of the soils. The mole drains
made without an outlet at the depth of 45-50 cm
acted as regulators for the shifting of the
capillary moisture in the soil. -- F. N. Sofiyeva

Card 1/1

CHUKREYEV, V.K.

Phenological and temperature surveys in 1962. Mat. po fen.
no.3:35-39 '62 (MIRA 18:1)

S/169/63/000/002/041/127
D263/D307

AUTHOR:

Chukreyev, V. K.

TITLE:

An attempt at a climatic classification of districts by the dynamics of precipitates (on the example of the Leningrad region)

PERIODICAL:

Referativnyy zhurnal, Geofizika, no. 2, 1963, 63, abstract 2B392 (Izv. Vses. geogr. o-va, 1961, v. 93, no. 3, 224-231)

TEXT: Climatic division into districts on the basis of climate classification of B. P. Alisov is applicable only to large territories. Small areas may be resolved into districts with the aid of a complex method proposed by Ye. Ye. Fedorov and A. I. Baranov. Application of this method is difficult on account of its awkwardness. The author suggests that climatic division into districts of fairly small regions be carried out according to the nature of the distribution of precipitation with time. This procedure allows maximum possible accuracy in the definition of boundaries. Climatic

Card 1/2

An attempt at a ...

S/169/63/000/002/041/127
D263/D307

regions reflect the characteristics of the underlying ground surface in the main meteorological elements, correspond to river basins and coincide with contemporary zonal types of vegetable cover. An example is given of the climatic division of the Leningrad region and adjoining areas into districts by the proposed method.

[Abstracter's note: Complete translation.]

Card 2/2

CHUKRSISV. V.a.

Method of making calculations of the supply of moisture in soils
more exact. Trudy GGI no.123:48-52 '65.

(MIRA 18:10)

CHUKREYEV, Ye.F. (Leningrad)

Effect of vegetable fats on the lipoid metabolism in vitro.
Vop.pit. 24 no.4:84-88 J1-Ag '65.

(MIRA 16:12)

1. Kafedra biologicheskoy khimii (zav. - prof. S.V.Nedzvetskiy)
Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta.
Submitted June 9, 1964.

IGNATOVA, T.S.; FLYAGIN, V.G.; CHUKREYEVA, Ye.I.

Increasing the durability of ladle brick. Ogneupory 28 no.8:
355-360 '63. (MIRA 16:9)

1. Vostochnyy institut ogneuporov.

IGNATOVA, T.S.; FLYAGIN, V.G.; POPOV, A.D.; CHUKREYEVA, Ye.I.; DIKSHTEYN, Ye.I.;
NAZAROV, K.S.; MAKARYCHEV, A.R.

Manufacture and testing of highly resistant ladle firebrick. Ogneupcry
29 no.11:489-495 '64. (MIRA 18:1)

1. Vostochnyy institut ogneuporov (for Ignatova, Flyagin, Popov,
Chukreva). 2. Magnitogorskiy metallurgicheskiy kombinat (for Dikshiteyn,
Nazarov, Makarychev).

CHUKROV, P.V.; SENDEROVA, V.M.; YERMILOVA, L.P.

Mineralogy of bismuth in the oxidation zone. Kora vyvetr.
no. 3:5-25 '60. (MIRA 13:12)

1. Institut geologii rudnykh mestorozhdeniy, mineralogii i
geokhimii AN SSSR.

(Kazakhstan--Bismuth ores)

100 AND 200 CODES		PROCESS AND PROPERTY CODES		100 AND 200 CODES	
<p>CA</p> <p>Control of naphthol production. A. Chukseyeva and N. Blik. <i>Ischimskikh Khim. Prom.</i> 3, 150 (1953). The detn. of naphthalene-sulfonic acids in the reaction mass is based on the practical insoly. of benzidine (I) salts of β-$C_{10}H_7SO_3H$, 2,6- and 2,7-$C_{10}H_7(SO_3H)_2$ and H_2SO_4 and the high soly. of the I salts of α-$C_{10}H_7SO_3H$ and 1,6-$C_{10}H_7(SO_3H)_2$, and the poor soly. of β-acid and high soly. of all other sulfonic acids and H_2SO_4 in a NaCl soln. Dissolve 40 g. of the sulfonation mass in boiling H_2O, filter, wash the ppt. free from H_2SO_4, unite the filtrate and wash waters and make up to 1 l.; neutralize 25 cc. of the soln. with 0.1 N NaOH against phenolphthalein, make up to 100 cc. with H_2O, add 27 g. c. p. NaCl with shaking until dissolved, let stand overnight, filter off the $C_{10}H_7SO_3Na$ with suction through a hardened filter, rinse out the flask with the filtrate, continue the action of the ppt. for 30 min., boil the ppt. with H_2O and treat with 50 cc. 1. HCl soln. (20 g. l and 25 cc. HCl (d. 1.19) in 1 l. H_2O), filter off and wash the $(C_{10}H_7SO_3H)_2(C_6H_5NH_2)_2$ free from Cl, and titrate together with the filter with 0.1 N NaOH against phenolphthalein with occasional boiling. (In 100 cc. H_2O contg. 27 g. NaCl is dissolved 0.0280 g. β-acid, corresponding to 1.35 cc. 0.1 N NaOH. H_2SO_4 is detd. with NH_4 and $BaCl_2$. For the detn. of 2,6- and 2,7-acids, 25 cc. of the soln. was titrated with 60 cc. of the 1. HCl soln. and the $[(C_6H_5NH_2)_2 C_{10}H_7(SO_3H)_2]$ was titrated with NaOH as above. α- and 1,6-Acids were detd. by titrating the soln. with 0.1 N NaOH and computing. For an artificial mixt. of the c. p. acids consisting of 0.4387 g. β-, 0.1953 g. α-, 0.0223 g. 2,6- + 2,7-, 0.0187 g. 1,6- and 0.0200 g. H_2SO_4 there was found by this method 0.4389 g. β-, 0.0223 g. 2,6- + 2,7-acid and 0.0200 g. H_2SO_4.</p> <p style="text-align: right;">Chas. Blanc</p>					
<p>ABN-11A METALLURGICAL LITERATURE CLASSIFICATION</p> <p>100 AND 200 CODES</p> <p>PROCESS AND PROPERTY CODES</p> <p>100 AND 200 CODES</p>					

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PROCESS AND PROPERTIES INDEX																									
<p>10</p> <p>ca</p> <p>Formation of naphthalene-1,8-disulfonic acid under conditions of the direct sulfonation of naphthalene. A. A. Chukhryaev. <i>Compt. rend. acad. sci. U. R. S. S. 16, 445 (1940) (in English).</i>—Sulfonation of 1 part of $C_{10}H_8$ with 4 parts of H_2SO_4 at 130° yields, besides 1,6-, 1,7-, 2,6-, 2,7- and 1,8-naphthalenedisulfonic acids, the 1,3-acid as well. The latter was found in the sulfonation mixture as follows: 10 g. of finely powdered $C_{10}H_8$ was added during 15 min. to 65 g. of H_2SO_4, heated to 130° and kept there for 4 hrs., cooled, and poured into 1 l. of ice H_2O. Enough $NaOH$ was added to the soln. to bind all the H_2SO_4. The ppt. was filtered, the acid filtrate neutralized with Na_2CO_3 and evapd. under reduced pressure to 100 cc. The soln. was cooled to room temp. and the slightly sol. Na salts of the naphthalenedisulfonic acids were gradually pptd. The ppt. was filtered off, the filtrate evapd. <i>in vacuo</i> and the residue dried at 100°. The acid chlorides obtained from the residue were treated with benzene; the 1,7-naphthalenedisulfonyl chloride was filtered off and ether added to the filtrate. 1,3-Naphthalenedisulfonyl chloride (about 3.4 g.), m. 136.5°, was pptd. 4 ref-erences.</p> <p>A. H. Krappe</p>																									
<p>ASAC-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																									

10

Ca

1-Nitro-4,8-naphthalenedisulfonic acid and 2-nitro-4,8-naphthalenedisulfonic acid. A. A. Chuksegova and E. V. Sokolova (Inst. Org. Produkty i Krasitela im. K. Voroshilova.), *J. Applied Chem.* (U. S. S. R.) 18, 55-8 (1945).—Na salt of nitro-C-acid (3-nitro-1,8-naphthalenedisulfonic acid) heated with 4 parts of PCl_5 for 6 hrs. on a steam bath gave, on pouring into cold water and crystal. from benzene, the corresponding bis(sulfonyl chloride), m. 154°; similarly, nitro-S-acid (4-nitro isomer) gave the bis(sulfonyl chloride), m. 177°. Nitration of 1,8-naphthalenedisulfonic acid with 63% HNO_3 in H_2SO_4 gave both the 3- and the 4-nitro isomers in following ratios: in 94% H_2SO_4 , 33% 3-nitro and 66% 4-nitro acid at 20-5°, 30% and 69% at 5-10°; in 97% H_2SO_4 at 15-200°, 42% and 58% resp.

G. M. Kozolupoff

ASM. I. A. METALLURGICAL LITERATURE CLASSIFICATION

CHUKSANOVA, A. A.

PA 234T30

USSR/Chemistry - Lignin

21 Oct 52

"The Chlorination of Hydrolyzed Lignin," N. N. Shorygina, A. A. Chuksanova, Inst of Org Chem, Acad Sci USSR

"Dok Ak Nauk SSSR" Vol 86, No 6, pp 1135, 1136

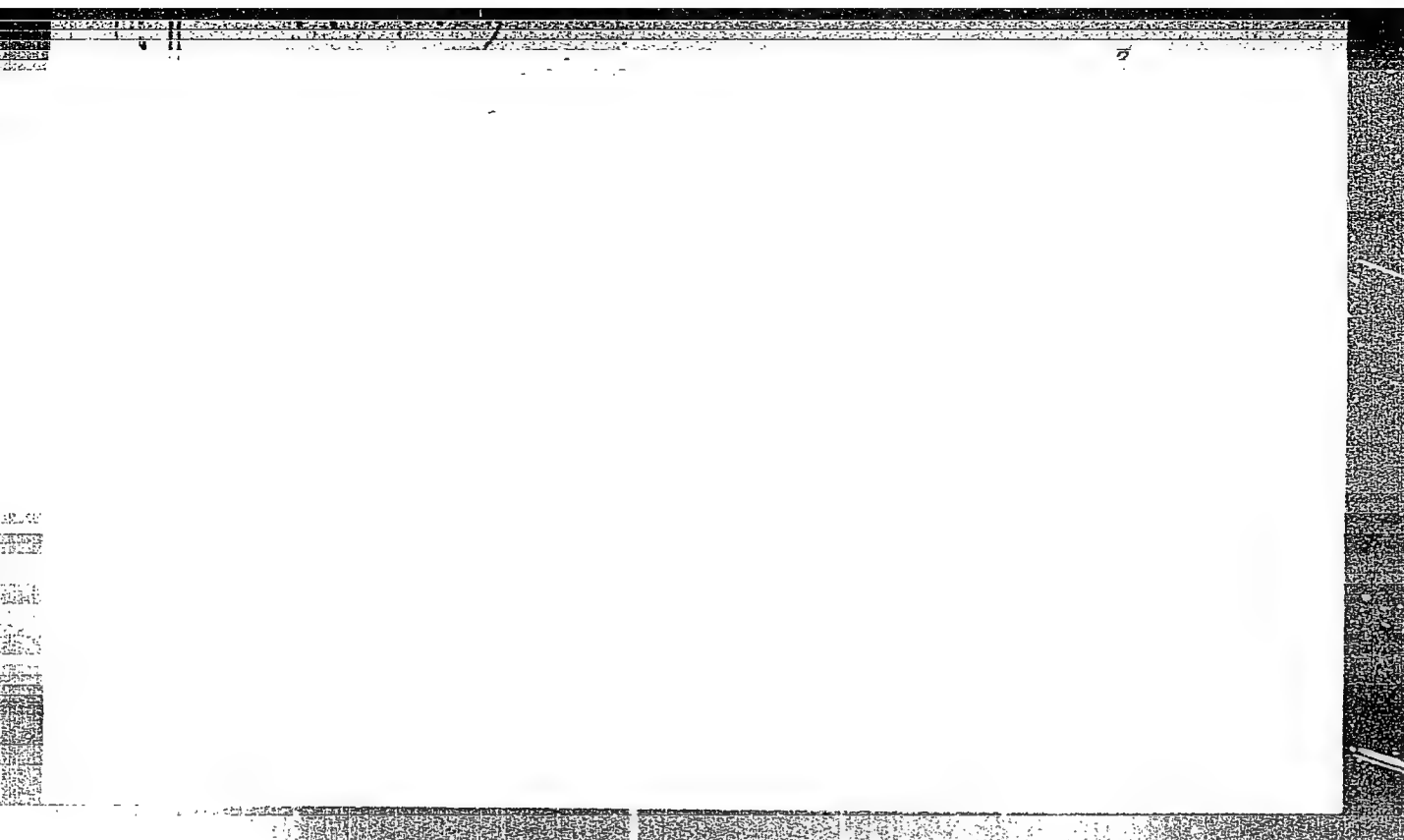
The chlorination of hydrolyzed lignin at room temp without catalysts and without an excess of chlorine takes place with a part of the chlorine going into the aromatic nucleus in the 6 position. Presented by Acad A. N. Nesmeyanov 9 Aug 52.

234T30

(CA 47 no. 22: 12296 '53)

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CIA-RDP86-00513R000509110014-0



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Chuksanova, H.H.

✓ Action of dilute nitric acid on isolated lignins. A. A. Chuksanova, L. L. Sergeeva, and N. N. Shorygina (N. D. Zelinski Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1956, 250-2. — Lignin samples obtained either by treatment of pine with very concd. HCl or by usual com. hydrolysis were treated with hot 3% HNO₃ with or without added NaNO₂, as well as with 5% and 7% HNO₃. The nitration under these conditions apparently takes place through the action of N oxides; the N content in the nitrated product does not exceed 3%. During nitration MeO groups are split off and CO₂H groups are formed. Both lignins yielded 3,5-dinitroguaiacol and (CO₂H)₂. G. M. Kosolapoff

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CHUKSANOVA
SERGEEVA, L.L.; CHUKSANOVA, A.A.; SHORYGINA, N.N.

Action of diluted nitric acid upon hydrolytic lignin. Izv. AN SSSR.
Otd. khim. nauk no.5:653-654 My '57. (MIRA 10:8)

1. Institut organicheskoy khimii im. N.D. Zelinskogo Akademii nauk
SSSR.

(Nitric acid) (Lignin)

5.3400

77084

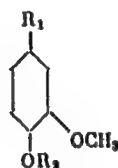
SOV/62-59-12-28/43

AUTHORS: Chuksanova, A. A., Sergeyeva, L. L., Shorygina, N. N.

TITLE: Behavior of Lignin Models on Nitration

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 12, pp 2219-2225 (USSR)

ABSTRACT: Nitration of lignin is accompanied by oxidation. The reaction of nitric acid with lignin model compounds was investigated. The following monomers were used as models:



- (I) $R_1 = \text{CHOH}-\text{CH}_2-\text{CH}_3$, $R_2 = \text{CH}_3$
- (II) $R_1 = \text{CHOH}-\text{CH}_2-\text{CH}_3$, $R_2 = \text{H}$
- (III) $R_1 = \text{CH}_2-\text{CHOH}-\text{CH}_3$, $R_2 = \text{CH}_3$
- (IV) $R_1 = \text{CH}_2-\text{CHOH}-\text{CH}_3$, $R_2 = \text{H}$
- (V) $R_1 = \text{CH}_2-\text{CH}_2-\text{CH}_2\text{OH}$, $R_2 = \text{CH}_3$
- (VI) $R_1 = \text{CH}_2-\text{CH}_2-\text{CH}_2\text{OH}$, $R_2 = \text{H}$
- (VII) $R_1 = \text{CH}_2-\text{CO}-\text{CH}_3$, $R_2 = \text{CH}_3$
- (VIII) $R_1 = \text{CH}_2-\text{CO}-\text{CH}_3$, $R_2 = \text{H}$

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Behavior of Lignin Models on Nitration

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The nitration was carried out in CCl_4 , at 5° . 1-(3,4-Dimethoxyphenyl)-propan-1-ol with 3 M HNO_3 gave the following nitro-compounds: 1-(6-nitro-3,4-dimethoxyphenyl)propan-1-ol (mp 86°), a very small amount of a dinitrocompound (mp 95°) and 2 compounds ($\text{C}_{22}\text{H}_{28}\text{O}_9\text{N}_2$).

(1) Mp 206° , mol. w. 462 (cryoscopy in benzene), oxidation (15% HNO_3) gave 4,5-dinitroveratrole. (2) Mp 134° , oxidation gave 4,5-dinitroveratrole. Nitration of II gave 3,5-dinitroquaiacol (mp 122°) and a nitro-compound $\text{C}_{20}\text{H}_{24}\text{O}_9\text{N}_2$ (mp $140-141^\circ$), mol. w. 416.

Nitration of III with 1 M HNO_3 gave 1-(6-nitro-3,4-dimethoxyphenyl)-propan-2-ol (A) (mp $99-100^\circ$) and with 3 M HNO_3 , in addition to A, also 1-(6-nitro-3,4-dimethoxyphenyl)-propan-2-one. Nitration of IV with 1 M HNO_3 gave a mononitro-derivative (mp $95-96^\circ$). V with 1 and 3 M HNO_3 gave 1-(6-nitro-3,4-dimethoxyphenyl)-propan-3-ol (mp $92-93^\circ$).

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Behavior of Lignin Models on Nitration

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VI with 3 M HNO_3 gave a light-brown powder containing 5.32% nitrogen. VII with 3 M HNO_3 gave 1-(6-nitro-3,4-dimethoxyphenyl)-propan-2-one (mp 125.5°). VIII with 3 M HNO_3 gave a dinitroketone (mp 184°) of unknown structure. This seems to indicate that lignin contains 60-70% phenyl-propane structural units capable of being nitrated. The yields are not given. There is 1 table; 9 references, 3 Soviet, 3 German, 1 Finnish, 2 U.S. The 2 U.S. references are: M. Kulka, H. Hibbert, J. Am. Chem. Soc., 65, 1180 (1943); Ph. C. Roberti, R. F. Jork, W. S. MacGregor, *ibid.* 72, 5760 (1950).

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SUBMITTED: March 31, 1958

Card 3/3

CHUKSANOVA, A.A.; SHORYGINA, N.N.

Action of nitric acid on β -guaiacyl ether of α -veratryl glycerol.
Izv. AN SSSR Otd. khim. nauk no. 8:1511-1512 Ag '60. (MIRA 15:5)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
(Ethers) (Glycerol)

CHUKSANOVA, A.A.; GRUSHNIKOV, O.P.; SHORYGINA, N.N.

Study of nitrolignin inhomogeneity. Izv. AN SSSR. Otd. khim. nauk
no. 10: 1810-1812 O '61. (MIRA 14:10)

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(Nitrolignin)

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Early diagnosis of virus diseases of potatoes by means of light
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(Potatoes--Diseases and pests) (Virus diseases of plants)